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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,302	03/31/2004	Shigeki Miyashita	119315	3652
25944	7590	02/24/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			HARRIS, KATRINA B	
			ART UNIT	PAPER NUMBER
			3747	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/813,302

Applicant(s)

MIYASHITA, SHIGEKI

Examiner

Katrina B. Harris

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-9 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/6/04, 4/14/04, 2/15/05
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date, _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

The following is a first action on the merits of application serial no. 10/813,302 filed March 31, 2004.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Katoh et al. (4,834,031).

Katoh et al. discloses, as in **claim 1**, an internal combustion engine that compresses an air-fuel mixture of a fuel and the air and makes the compressed air-fuel mixture subjected to combustion in a combustion chamber to generate power, said internal combustion engine comprising:

a compression ratio varying mechanism that varies a compression ratio as an indicator representing a degree of compression of the air-fuel mixture; a compression ratio control module that controls actuation of said compression ratio varying mechanism, so as to regulate the compression ratio according to a driving condition of said internal combustion engine; a failure detection module that detects occurrence of a failure in said compression ratio varying mechanism; and a specific control restriction module that, in response to detection of the occurrence of a failure, restricts execution of

a specific control that has adverse effects on stable combustion of the air-fuel mixture.

Regarding **claim 2**, wherein said compression ratio varying mechanism has a mechanism that changes over the compression ratio between at least two different levels, that is, a first compression ratio of a lowest 25 level and a second compression ratio of a highest level, and said failure detection module detects a non-variable state of the compression ratio to at least the second compression ratio in said compression ratio varying mechanism.

Regarding **claim 3**, wherein said failure detection module detects a lock-in of said compression ratio varying mechanism at a compression ratio different from the second compression ratio.

Regarding **claim 4**, said internal combustion engine further comprising:
an air-fuel ratio control module that sets an air-fuel ratio, which is an indicator representing a ratio of the air to the fuel included in the air-fuel mixture, equal to at least either of a stoichiometric air-fuel ratio, which ensures just sufficient combustion of the air and the fuel, and a lean air-fuel ratio, which 15 has insufficiency of the fuel to the air, according to the driving condition of said internal combustion engine, wherein said specific control restriction module, in response to detection of the occurrence of a failure, restricts the control of setting the lean air-fuel ratio to the air-fuel ratio of the air-fuel mixture.

Regarding **claim 5**, said internal combustion engine further comprising:
an ignition module that emits a spark at a preset timing in the combustion chamber to start combustion of the compressed air-fuel mixture; a cold state detection module that

detects that said internal combustion engine is in a cold state; and a cold-state ignition delay control module that, when said internal combustion engine is in the cold state, controls said ignition module and carries out an ignition delay control to retard a timing of emitting the spark from the preset timing, wherein said specific control restriction module restricts execution of the ignition delay control, in response to detection of the occurrence of a failure.

Regarding **claim 6**, said internal combustion engine further comprising: an EGR mechanism that recirculates part of a combustion exhaust, which is produced by combustion of the air-fuel mixture, to the combustion chamber; and an EGR control module that controls the amount of the recirculated combustion exhaust by operating said EGR mechanism according to the driving condition of said internal combustion engine, wherein said specific control restriction module restricts the recirculation by said EGR mechanism, in response to detection of the occurrence of a failure.

Regarding **claim 7**, wherein said failure detection module detects a lock-in of said compression ratio varying mechanism, and said specific control restriction module comprises an allowable control specification storage module that stores an allowable control specification of the specific control corresponding to each lock-in compression ratio, at which said compression ratio varying mechanism is locked in, said specific control restriction module restricts execution of the specific control to the allowable control specification corresponding to the lock-in compression ratio.

Regarding **claim 8**, said internal combustion engine further comprising: an intake conduit that leads a supply of intake air to the combustion chamber;

a first fuel injection valve that injects the fuel in the intake conduit; a second fuel injection valve that injects the fuel into the combustion chamber; and a fuel injection control module that actuates at least one of the first fuel injection valve and the second fuel injection valve to inject the fuel according to the driving condition of said internal combustion engine, wherein said specific control restriction module restricts actuation of the first fuel injection valve to inject the fuel, in response to detection of the occurrence of a failure.

Regarding **claim 9**, a control method of an internal combustion engine that compresses an air-fuel mixture of a fuel and the air and makes the compressed air-fuel mixture subjected to combustion in a combustion chamber to generate power, said control method comprising the steps of:
controlling actuation of a compression ratio varying mechanism, which varies a compression ratio as an indicator representing a degree of compression of the air-fuel mixture, according to a driving condition of said internal combustion engine, so as to regulate the compression ratio of said internal combustion engine; detecting occurrence of a failure in said compression ratio varying mechanism; and restricting execution of a specific control that has adverse 10 effects on stable combustion of the air-fuel mixture, in response to detection of the occurrence of a failure.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina B. Harris whose telephone number is 571-272-4842. The examiner can normally be reached on 6:30 AM -3:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 571-272-4856. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Katrina B. Harris
Examiner
Art Unit 3747

KBH



Tony M. Argenbright
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